AMENDMENTS TO THE CLAIMS

A listing of the claims presented in this patent application appears below. This listing replaces all prior versions and listing of claims in this patent application.

Claim 1 (currently amended): A method for manufacturing a SiC device, using selective oxidization of silicon, ascribable to the difference between an oxidation rate for SiC and an oxidation rate for silicon, without using a silicon nitride film as an oxidation protection mask, the method comprising:

depositing a silicon film above a SiC substrate;

delineating the silicon film into a required pattern so as to expose a part of a surface of the SiC substrate; and

~~annealing the SiC substrate in a water rich ambient to~~ selectively oxidizing the delineated silicon film so as to grow a localized thermal oxide film in the required pattern above the SiC substrate by exposing simultaneously the part of the surface of the SiC substrate and all of the delineated silicon film to a water rich ambient.

Claim 2 (original): The method of claim 1, wherein H_2O partial pressure in the water rich ambient is selected such that oxidation rate for the silicon film is larger than that for the SiC substrate.

Claim 3 (original): The method of claim 2, wherein the H_2O partial pressure in the water rich ambient is kept more than 0.95.

Claim 4 (original): The method of claim 1, wherein said silicon film is delineated into a pattern for an element isolation region.

Claim 5 (previously presented): A method for manufacturing a SiC device, comprising:

depositing a silicon film above a SiC substrate;

delineating the silicon film into a required pattern;

annealing the SiC substrate in a water rich ambient to selectively grow a localized thermal oxide film above the SiC substrate;

forming a trench at the surface of the SiC substrate before depositing said silicon film, wherein the silicon film is delineated such that the silicon film buries the trench, and the silicon film buried in the trench is selectively oxidized in the water rich ambient.

Claim 6 (original): The method of claim 1, further comprising forming a blanket silicon oxide film at the surface of the SiC substrate in an oxygen added ambient, before depositing said silicon film so that said silicon film can deposit on the blanket silicon oxide film.

Claim 7 (original): The method of claim 6, wherein the H_2O partial pressure in the oxygen added ambient is kept less than 0.95.

Claim 8 (original): The method of claim 6, further comprising selectively removing said blanket silicon oxide film using said silicon film as an etching mask so as to expose a part of the surface of the SiC substrate, before said silicon film is selectively oxidized in the water rich ambient

Claim 9 (currently amended): A method for manufacturing a SiC device, comprising:

forming a blanket silicon oxide film at the surface of the SiC substrate in an oxygen added ambient;

depositing a silicon film on the blanket silicon oxide film;

delineating the silicon film into a required pattern;

selectively removing the blanket silicon oxide film using the silicon film as an etching mask so as to expose a part of the surface of the SiC substrate;

annealing the SiC substrate in a water rich ambient to selectively grow a localized thermal oxide film above the SiC substrate; and

forming a thin silicon oxide film at the exposed part of the surface of the SiC substrate in the oxygen added ambient after selectively growing said localized thermal oxide film, wherein the oxygen added ambient and the water rich ambient are successively achieved in a same reaction tube so as not to expose the surface of the SiC substrate to an air outside of the reaction tube.

Claim 10 (original): The method of claim 1, wherein said water rich ambient is achieved by directly introducing ultra pure water in a reaction tube for oxidation.

Claim 11 (previously presented): A method for manufacturing a SiC device, comprising:

forming a blanket silicon oxide film at the surface of the SiC substrate in an oxygen added ambient;

depositing a silicon film on the blanket silicon oxide film;

delineating the silicon film into a required pattern;

selectively removing the blanket silicon oxide film using the silicon film as an etching mask so as to expose a part of the surface of the SiC substrate;

annealing the SiC substrate in a water rich ambient to selectively grow a localized thermal oxide film above the SiC substrate;

forming a gate oxide film at the exposed part of the surface of the SiC substrate in the oxygen added ambient; and

annealing said gate oxide film in the water rich ambient at substrate temperature lower than the substrate temperature at which the gate oxide film is formed.

Claim 12 (original): The method of claim 8, farther comprising:

depositing another silicon film at the exposed part of the surface of the SiC substrate;

annealing the SiC substrate in the water rich ambient to grow a gate oxide film at the exposed part of the surface of the SiC substrate; and

annealing said gate oxide film in the water rich ambient at substrate temperature equal to or lower than the substrate temperature at which the gate oxide film is grown.

Claim 13 (currently amended): A method for manufacturing a SiC device, comprising:

forming a gate oxide film on a surface of a SiC substrate in an O_2 rich ambient; and

annealing said gate oxide film in a water rich ambient at substrate temperature equal to or lower than the substrate temperature at which the gate oxide film is formed so as to reduce interface density between said gate oxide film and said SiC substrate, after stopping the supply of the O_2 rich ambient, the H_2O partial pressure of the water rich ambient is larger than the H_2O partial pressure of the O_2 rich ambient .

Claim 14 (original): The method of claim 13. wherein H_2O partial pressure in the water rich ambient is kept more than 0.95.

Claim 15 (currently amended): The method of claim 13, wherein said ~~forming the gate oxide film comprising oxidizing the surface of the SiC substrate in an oxygen added~~ O_2 rich ambient is implemented by a mixture of O_2 and H_2O.

Claim 16 (currently amended): The method of claim 15, wherein H_2O partial pressure in the ~~oxygen added~~ O_2 rich ambient is kept less than 0.95.

Claim 17 (currently amended): ~~The~~ A method of ~~claim 13, wherein said forming the gate oxide film~~ for manufacturing a SiC device, comprising:

depositing a silicon film at the surface of the SiC substrate; and

annealing the SiC substrate in the water rich ambient to grow the gate oxide film at the surface of the SiC substrate; and

annealing said gate oxide film in water rich ambient at a substrate temperature equal to or lower than the substrate temperature at which the gate oxide film is formed so as to reduce interface density between said gate oxide film and said SiC substrate.

Claim 18 (original): The method of claim 13, wherein said gate oxide film is annealed at substrate temperature of about 700°C-1050°C.

Claim 19 (withdrawn): An oxidation furnace comprising:

a reaction tube;

a boat configured to mount a SiC substrate;

a heater configured to heat the SiC substrate:

oxygen gas introduction tube connected to an upstream side of the reaction tube;

a mass flow controller connected to the oxygen gas introduction tube configured to control a flow rate of oxygen gas;

a water introduction tube connected to the upstream side of the reaction tube; and

a conveying pump configured to introduce an ultra pure water in to the reaction tube through the water introduction tube.

Claim 20. (withdrawn): An oxidation furnace comprising:

a reaction space defining means for causing thermal oxidation phenomena therein;

a mounting means for mounting a SiC substrate;

a heating means for heating the SiC substrate;

an oxygen gas introduction means for introducing an oxygen gas into the reaction space defining means; and

a water introduction means for introducing an ultra pure water into the reaction space defining means such that H_2O partial pressure in the reaction space defining means is controlled to any values between 0 to 1.